

Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.



19
118313

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

INSECT PEST SURVEY

Special Supplement (1950, No. 2)

Issued February 3, 1950

ESTIMATES OF DAMAGE BY THE EUROPEAN CORN BORER TO FIELD CORN IN THE UNITED STATES IN 1949

by E. W. Beck

Division of Cereal and Forage Insect Investigations

In 1949 the European corn borer (*Pyrausta nubilalis* (Hbn.)) destroyed an estimated 313,819,000 bushels of field corn. On the basis of average prices received by farmers as of December 15, 1949, the value of the crop loss was \$349,635,000. It was estimated that 85,485,000 bushels of corn were destroyed in 1948 by this pest. The greater crop loss in 1949 was due to higher populations of the borer in the Corn Belt States and, in a less degree, to the fact that damage occurred in a larger number of counties in 1949 than in 1948.

The estimates of damage, production data, and value of corn grown for grain, are given by States in table 1.

Borer populations were estimated by fall surveys made in a total of 701 counties¹⁷. The estimates of damage were calculated on a county or district basis, depending upon available data. By using district averages, or averages of neighboring counties where not all counties were surveyed, damage was estimated for 1,001 counties. A total of 1,312 counties were known to be infested by the corn borer and the estimates of damage therefore included 76 percent of them. In the remaining 24 percent of the counties damage was considered negligible, or insufficient data were available to permit an estimate.

A loss in yield of field corn of 3 percent per borer per plant, the index of damage utilized in previous years, was used in calculating the losses in corn production caused by the estimated populations of borers in the respective districts and counties. This index is based on losses caused by single- or first-generation borers and may be somewhat high as a measure of the direct loss in yield caused by the second-generation borers which formed the bulk of the population at the time this survey was made. However, second-generation borers are responsible for indirect losses such as dropped ears, grain spoilage, and stalk breakage resulting in reduced harvesting efficiency. It is therefore believed that a loss in yield of 3 percent per borer per plant is the best index now available for use in estimating losses caused by the borer populations prevalent at harvesttime. In conjunction with this index, the estimates of production and average prices per bushel as reported in December 1949 by the Crop Reporting Board of the Bureau of Agricultural Economics were used so far as available in calculating the loss figures shown in table 1. It was necessary in some instances, to use estimates of yields made by that agency for previous years, or estimates based on the 1945 census. Current production estimates were utilized, however, as they became available.

¹⁷ See Insect Pest Survey Special Supplement (1950, No. 1), Issued January 19, 1950

No estimates of the damage to market sweet corn or to sweet corn grown for processing were made for the 1949 season. Because of the greatly increased application of insecticides and the utilization of adjusted planting schedules, the survey methods used did not yield sufficient data for reliable estimates of damage to these crops.

Table 1.--Estimates of damage by the European corn borer to field corn harvested in the United States in 1949

State	Counties			Corn grown for grain		
	Known to: included	Estimated production	Estimated value per bushel	Estimated production	Value of production	Loss of crop
	Number	1,000 Bushels	Dollars	1,000 Dollars	1,000 Bushels	1,000 Dollars
Connecticut	8	240	1.50	359	1	1
Delaware	3	4,260	1.19	5,069	89	106
Illinois	97	90	1.18	545,616	58,695	69,261
Indiana	92	82	1.15	279,096	19,434	22,349
Iowa	99	99	1.10	585,106	161,385	177,521
Kansas	66	0	1.08	-	-	-
Kentucky	77	15	1.14	9,927	124	141
Louisiana	1	0	1.30	-	-	-
Maine	15	13	42	1.60	67	Tr
Maryland	23	23	15,399	1.22	19,397	241
Massachusetts	14	14	196	1.50	294	294
Michigan	50	34	60,904	1.15	1	2
Minnesota	85	68	241,782	1.04	70,040	1,991
Missouri	75	65	162,572	1.08	251,453	30,119
Nebraska	64	216,154	1.06	175,578	4,128	31,323
New Hampshire	9	9	88	1.50	229,123	7,211
New Jersey	21	20	5,310	1.28	132	2
New York	60	60	8,806	1.32	6,797	51
North Carolina	17	3	1,245	1.09	11,624	65
North Dakota	34	29	10,271	1.01	1,357	67
Ohio	87	88	193,424	1.18	10,374	12
Pennsylvania	67	67	52,314	1.25	228,240	152
Rhode Island	5	5	36	1.50	65,392	16,542
South Dakota	47	45	77,947	1.04	54	855
Tennessee	15	0	-	1.13	81,065	Tr
Vermont	14	11	90	1.50	7,255	1
Virginia	53	14	10,064	1.23	12,379	266
Wisconsin	71	71	77,196	1.05	81,055	5,196
West Virginia	42	5	510	1.33	679	3
Total	1,312	1,001	2,385,152	2,670,408	313,819	549,635

